

# HDMI® 4x4 4K MATRIX

Supports 4K@60Hz, 4:4:4 Chroma and HDR



**Vanco Part Number  
EVMX4K44**

**HDMI® 4 x 4 4K  
Matrix Selector Switch**

**EVOLUTION**  
BY   
ADVANCING DIGITAL CONNECTIVITY

**www.vanco1.com • 800.626.6445**

## DEAR CUSTOMER

Thank you for purchasing this product.  
For optimum performance and safety, please  
read these instructions carefully before connecting, operating or  
adjusting this product. Please keep this manual for future reference.

**This product is 100% inspected and tested in the  
United States to verify HDMI performance parameters.**

## WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.
2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.
3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
4. Do not install near any source of heat, including other units that may produce heat.
5. Do not place unit near flames.
6. Only clean unit with a dry cloth.
7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.
8. Protect the power cord from being walked on or pinched, particularly at the plugs.
9. Use unit only with accessories specified by the manufacturer.
10. Refer all servicing to qualified personnel.

## CAUTION

HDMI is a very complex technology requiring continuous authentication of the signal and the same video resolution and audio settings on all electronic equipment in the system. When there are multiple sources and displays, the video resolution and audio setting on all connected units must be adjusted to correspond with that of the display having the lowest video and audio capability.

## FEATURES

# INTRODUCTION

The Evolution by Vanco EVMX4K44 4x4 Matrix with IR, RS-232, and IP control, allows 4 HDMI sources to be distributed to up to 4 displays simultaneously. Have multiple sources displayed simultaneously on any display or have a single source split to multiple displays, flexibility for the perfect solution. Equipped with HDMI 2.0, the EVMX4K44 is capable of transmitting 4K@60Hz, 4:4:4 Chroma Subsampling, and HDR. For control, the EVMX4K44 features multiple methods including simple control using the front panel buttons, RS-232, IR using the provided remote and TCP/IP. Audio extraction for each output is also available in the form SPDIF digital outputs to interface with third party audio systems. For reliable HDMI distribution with 4K and HDR in mind, the EVMX4K44 is a great choice for any application.

## HDMI® 4 x 4 4K Matrix Selector Switch

### Part # EVMX4K44

- Allows up to 4 HDMI sources to be distributed simultaneously to up to 4 displays
- Supports up to 4K@60Hz, 4:4:4, and HDR
- Supports both HDR10 and Dolby Vision
- HDCP 2.2/HDCP 1.4 compatible
- Supports Deep Color and 3D
- Supports DTS/DTS:X, Dolby Atmos and PCM Audio Formats
- 4 SPDIF ports provide de-embedded HDMI audio output
- EDID adjustment via RS-232 or manually adjustable
- RS-232, remote control and/or manual control for switching
- Power Supply: 24V DC, 1.25A
- Dimensions: 17" W x 1.5" H x 9.12" D

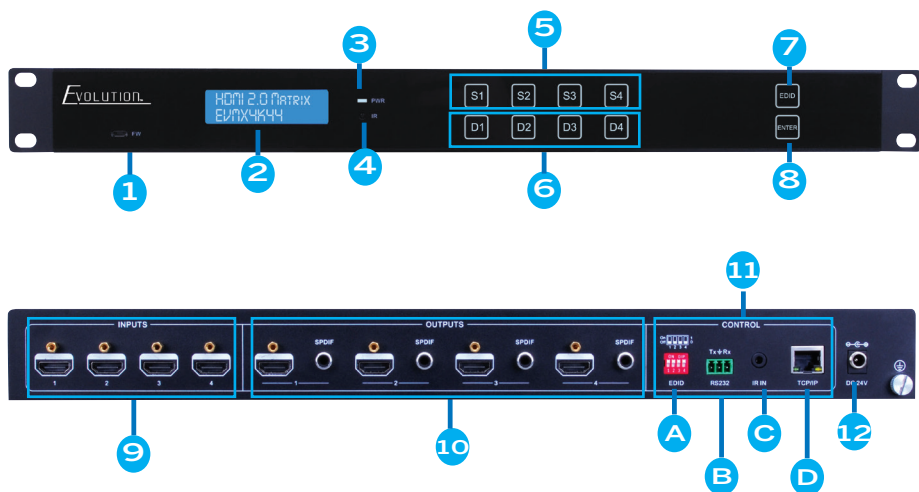
# PACKAGE CONTENTS

- 4x4 Matrix EVMX4K44
- (1) IR Remote
- (2) Mounting ears with screws
- (4) Plastic cushions with screws
- (1) RS-232 cable
- (1) IR Receiver
- Power Supply (24V DC, 1.25A)
- Product Manual

## SPECIFICATIONS

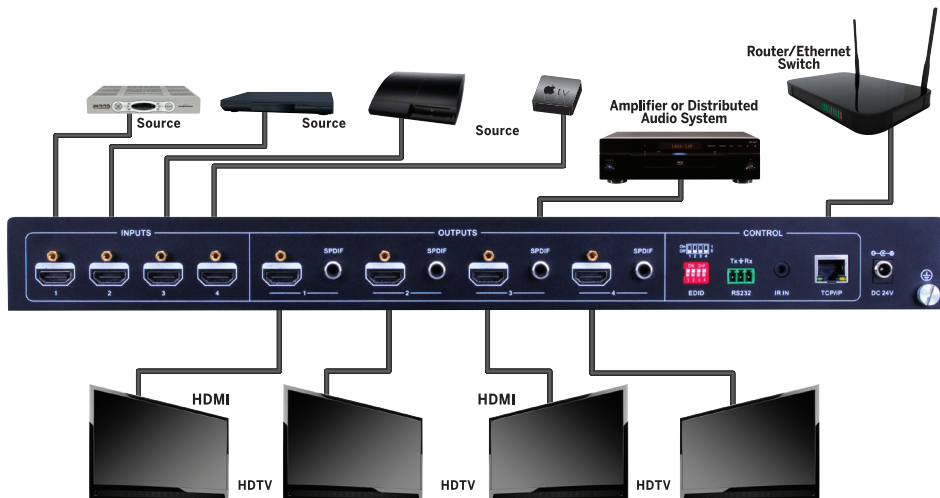
Input Signal .....	4 HDMI
Input Connectors .....	4 Female HDMI
Output Signal .....	4 HDMI, 4 SPDIF audio
Output Connectors .....	4 Female HDMI Type A; 4 Digital Audio (Coax)
Control Signal.....	IR IN; TCP/IP; RS232
Control Connector .....	3.5mm mini jack; female RJ45; 3-pin pluggable terminal block
Video Signal .....	HDCP 2.2
Audio Signal .....	HDMI (or DVI-D)
Resolution Range .....	Dolby Digital, DTS, DTS-HD
EDID Management .....	Built-in EDID data and manual EDID management
Resolution Range.....	640x480@60Hz; 4K@60Hz 4:4:4, 1080p, 3D
Bandwidth.....	18 Gbps
Switching Speed .....	200ns (Max.)
EDID Management .....	In-built EDID data and manual EDID management
HDMI Cable Length .....	Less than 5m
Power Supply .....	124VDC, 1.25A
Power Consumption .....	14W (max)
Temperature .....	0 ~ +40 degree C
Storage Temperature .....	-10 ~ +55 degree C
Reference Humidity .....	10% ~ 90%
Dimension .....	437mm W x 236.5mm H x 44mm D
Weight .....	1.75Kg

# PANEL DESCRIPTIONS



1. Firmware: Micro USB port for updating firmware when applicable
2. LCD Screen - Displays Input/Output status
3. IR Sensor - receives IR signal from included remote
4. LCD Power Indicator
5. INPUT Selection Buttons: Select input to send to any output
6. OUTPUT Selection Buttons: Select output(s) to send input signal to
7. EDID Adjustment: see EDID section for necessary adjustments
8. ENTER: Confirm operation. Press to confirm any changes for INPUT/OUTPUT selection or EDID adjustments
9. HDMI Inputs: Inputs 1-4; connect source(s)
10. HDMI Outputs: Outputs 1-4; connect display(s)
11. Control
  - A. EDID dip switch - See EDID section for adjustment and operation
  - B. RS-232 Port - Serial control and 3rd party integration
  - C. IR IN - 3.5mm jack to connect to included IR RX cable for IR control (unit can be hidden and can still be controlled using this cable)
  - D. TCP/IP - LAN port to connect to network via ethernet switch or router. Gives the capability of the matrix unit to be controlled via IP
12. DC 24V Port: connect included power supply

## CONNECTION DIAGRAM



## CONNECT AND OPERATE

1. Connect up to 4 sources such as a Blu-Ray Player, game console, A/V Receiver, Cable or Satellite Receiver, etc. to the HDMI inputs on the unit.
2. Connect up to 4 displays such as an HDTV, Projector, etc. to the HDMI outputs on the unit.
3. OPTIONAL: Connect an RS-232 cable from the RS232 port on the matrix to a third party control system.
4. OPTIONAL: Connect third party audio systems via SPDIF audio outputs
5. Connect the included DC 24V Locking power supply.
6. Power up the EVMX4K44 and then the components connected.

### NOTE

- Ensure cabling is 2.0 compliant or HDMI certified for the best 4K resolution display
- For audio outputs, connect amplifiers or components that are capable to decode HDMI audio to the SPDIF ports, otherwise there will be no audio output

# FRONT PANEL CONTROL

## Input/Output Switching

The front panel features four input selection buttons and four output selection buttons for manual switching:

1. To send one input signal to any single output:

Example Input 1 to Output 3

→ **Press S1 + D3**

2. To send one input signal to multiple outputs:

Example: Input 2 to Output 3 and 4

→ **Press S2 + D3 + D4**

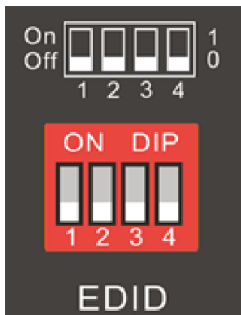
NOTE: Indicators of the pressed buttons will blink green for three times if the conversion is successful.

## EDID

Extended Display Identification Data, the EDID adjustment helps with any compatibility issues by manually selecting a combination of resolution and audio formats that the connected displays will accept.

The following table shows each combination based on the dip switch adjustments from 1-4, see rear side of the EVMX4K44 for the EDID dip switches. Simply adjust to On or Off for all four switches.

To make an EDID adjustment, power off the EVMX4K44, adjust the dip switches, and then power on the unit for changes to take effect. A successful adjustment will result in picture being displayed.



Dip Switch Settings (1-4)	Video Format	Audio Format
0 0 0 0	1080p	LPCM
0 0 0 1	720p	LPCM
0 0 1 0	3840x2160	LPCM
0 0 1 1	1080p	Dolby DTS
0 1 0 0	3840x2160	Dolby DTS
0 1 0 1	4096x2160	Dolby DTS
0 1 1 0	3840x2160/60Hz	LPCM
0 1 1 1	3840x2160/60Hz	Dolby DTS
1 0 0 0	EDID PASS THROUGH	
1 0 0 1	3840x2160/30Hz, HDR/ Dolby Vision	LPCM
1 0 1 0	3840x2160/30Hz, HDR/ Dolby/DTS	Dolby DTS

## Switching Status Query

Press OUTPUTS button 1, 2, 3 or 4 to inquiry its corresponding input, and then the indicator of the input button will turn green.

## REMOTE CONTROL

- Standby button, press to turn on or off the unit, note that the unit will not turn completely off, and will go into standby mode
- INPUTS: Select any input in order to send to any output
- OUTPUTS: Select the desired output to send the input signal to
- Menu Buttons: ALL, EDID, CLEAR and ENTER

**ALL:** Select all inputs/outputs, in order to send an input to all outputs (splitting signal).

To send a single input to all outputs:

Example: Input 1 to all Outputs:

Press INPUT 1, then ALL, then ENTER

### **EDID MANAGEMENT BUTTON:**

- One input port learns the EDID data from a specific output port.

Example: Input 2 learns EDID data from output 4:

Press EDID, then INPUT 2, then OUTPUT 4, then ENTER

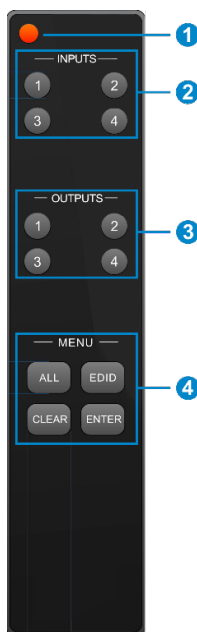
- All input ports learn EDID data from one specific output port.

Example: All input ports learn EDID data from output 3:

Press EDID, then ALL, then OUTPUT 3, then ENTER

**CLEAR:** Withdraw button

**ENTER:** Confirm operation





# RS-232 CONTROL

Set the parameters (baud rate, data bit, stop bit and parity bit) correctly to ensure reliable RS-232 control.

**Baud rate: 9600**

**Data bit: 8**

**Stop bit: 1**

**Parity bit: none**

- “[, “]” in the commands are for easy recognition only and not necessary in real operations. Other symbols including “.”, “;”, “/”, “%”, “:”, “^”. are parts of the commands.
- Feedback listed in the column “Feedback Example” are only for reference, feedback may vary according to different operations.
- Dial the EDID switcher to “1111” before sending commands pertaining to software EDID management (with gray background).

*Visit the product page at [www.vanco1.com](http://www.vanco1.com) for additional product commands and downloads.*

# TCP/IP CONTROL

## **Control Mode**

TCP/IP Control allows for the matrix unit to be controlled remotely using any device that is on the same network as the matrix unit is connected to. Simply connecting an ethernet switch or router to the TCP/IP port on the backside of the matrix allows for this. The matrix unit will now be accessible by entering the IP address in any browser.

TCP/IP default settings: IP is 192.168.0.178

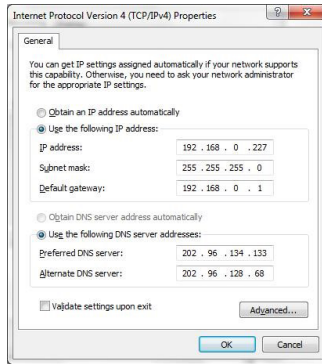
Gateway is 192.168.0.1

Serial Port is 4001.

This is the default IP address the matrix unit will utilize, this can be changed manually. If there are issues connecting to the matrix unit using the default IP address listed above, ensure that no other component within the network is using the same IP address.

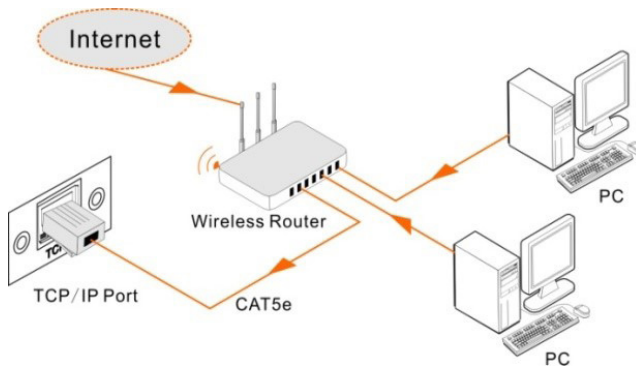
## Controlled by single PC

1. Connect a computer to the TCP/IP port of the Matrix Switcher and set its network segment to the same as the default IP of the Matrix Switcher (192.168.0.178).
2. Change the IP of the PC



## Controlled by PC(s) in LAN

The Matrix Switcher can be connected to a router or switch. This allows for the matrix unit to be controlled over TCP/IP. When controlling the matrix unit with this method, ensure the network segment is the same as the router. See below for connection diagram using this method:



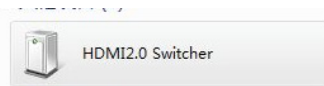
1. Connect the TCP/IP port of the Matrix Switcher to Ethernet port of PC using a Category (Cat5e/6) cable.
2. Set the PC's network segment to the same as the Matrix Switcher. Record the PC's original network segment.
3. Set the Matrix Switcher's network segment to the same as the router.
4. Set the PC's network segment to the original segment.
5. Connect the Matrix Switcher and PC(s) to the router. In the same LAN, each PC should be able to control the Matrix Switcher simultaneously.

# USER INTERFACE

The EVMX4K44 has a built-in UI (User Interface) for convenient TCP/IP control. The UI allows switching, EDID adjustment, network changes etc.

Access the UI interface through any one of the following methods:

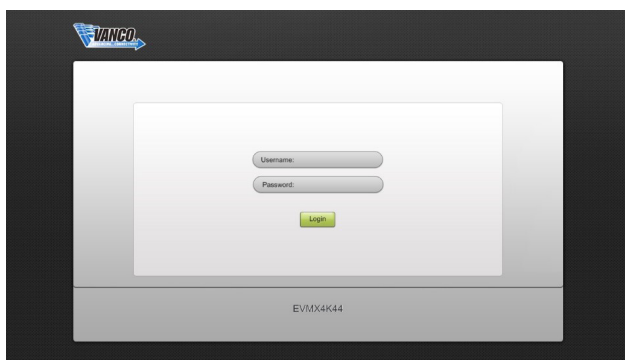
1. Access through web browser: Type the default IP of 192.168.0.178 in any browser of a connected device, wired or wireless. The IP address also can be found via sending "%9964." Through the RS-232 control software.
2. Access through UPnP: Go to My Network Place in your PC, and click the icon as below:



PCs running Windows XP system may occur issues in finding UPnP icon, follow these steps to switch on UPnP protocol:

1. Add UPnP component: go to "Control Panel" -> double-click "Add/ Delete Programs" -> double-click "Add/ Delete windows component" -> tick "UPnP" -> click "Next" -> click "OK".
2. Enable Windows Firewall: go to "Control Panel" -> double-click "Windows Firewall" -> click "Others" -> tick "UPnP framework".
3. Enable UPnP auto-starting: go to "Control Panel" -> double-click "Administrative Tools" -> double-click "Services" -> find and click SSDP Discovery Service and Universal Plug and Play Device Host -> click "OK." UPnP will now automatically start when you turn on your computer.
4. Reboot the device.

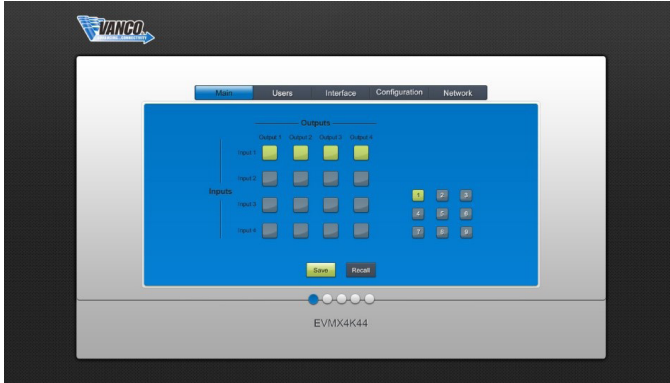
Type 192.168.0.178 in your browser, the log-in interface shown as below:



There are 2 selectable usernames – admin (default password: admin) and user (default password: user). Logging in as the admin allows more access and more configuration interfaces than the end user interface.

## Main Tab

The main tab allows for switching inputs to outputs, using a grid format, simply select the input and output combination desired.

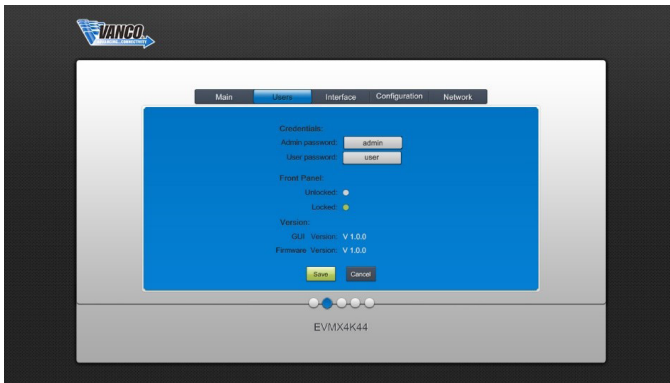


The button matrix displays every possible connection between every input and output, users can carry on the connections by clicking corresponding button.

Buttons 1~9 at the right-bottom corner provides quick saving and recall for overall connection status.

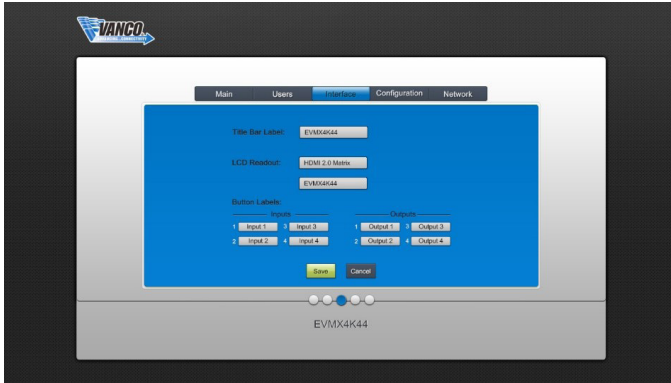
## User Tab

The main tab allows for switching inputs to outputs, using a grid format, simply select the input and output combination desired.



## Interface Tab

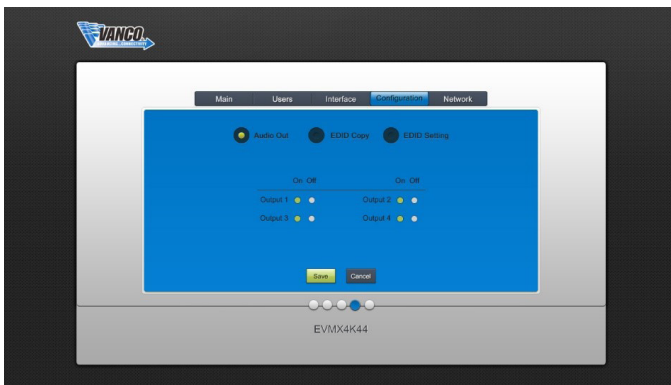
The interface tab allows for changes to the name of the matrix switcher, the LCD readout on the front panel, and also allows for changing the name of the inputs and outputs for easier input/output switching.



## Configuration Tab

The configuration tab allows for switching on/off the SPDIF digital audio output for every output and also manages EDID. See the screenshot below:

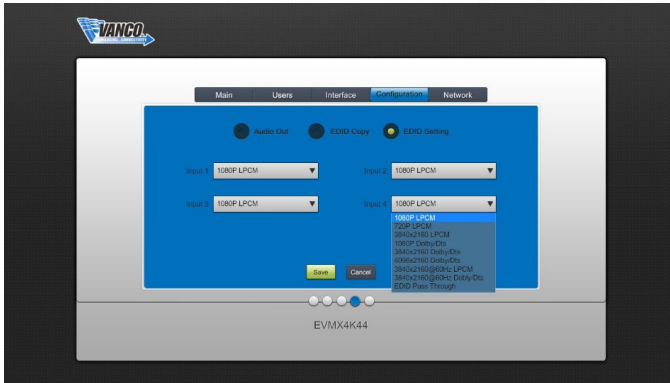
1. Audio Out: Switch on/off audio for every output.



2. EDID Copy: One or multiple inputs received EDID info from one specific output.

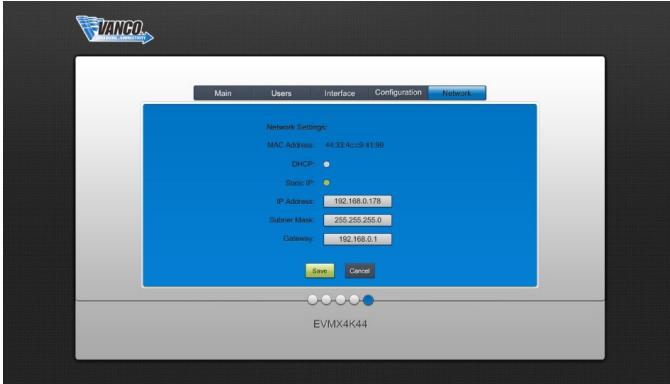


3. EDID Setting: Select the built-in EDID for every input. Choose from a list of default EDID combinations.



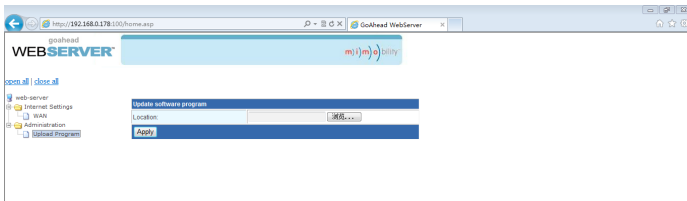
## Network Tab

The network tab allows for IP and other network info changes. Be sure to note down this info and save.



## UI Update

The UI for the Matrix Switcher supports online updating, enter the following URL: <http://192.168.0.178:100> in any browser. Type the username and password (the same as the UI log-in settings, modified password will be available only after rebooting) to log in the configuration interface. Then click Administration at the source menu to get to Upload Program as shown below:



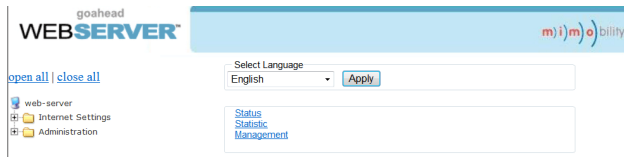
## TCP/IP Port Configuration

IP address, subnet mask, and Gateway of the Matrix Switcher can be modified via UI from the above description, additionally the IP port, including IP reset, password reset, and IP module firmware update can also be completed on the WebServer.

Enter the same URL (Default: 192.168.0.178:100, changeable) in your browser. Enter correct username and password to log in the WebServer:

**User:** admin

**Password:** admin



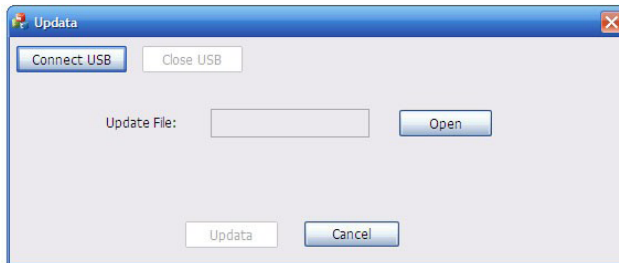
## Firmware Update

The matrix switcher also has a USB port for online firmware upgrade on the front panel. Follow these steps to upgrade firmware:

1. Copy the upgrade software and the latest upgrade file (.bin) to PC.
2. Connect the USB ports of the matrix switcher and the PC via USB cable.
3. Double-click the update software icon (see as below).



The following prompt should display:



1. Click Connect USB.
2. Click Open to load the upgrade file, then click Updata to start firmware upgrading.

Note: To ensure available control, the COM number of the PC should be 1~9.



<b>Problems</b>	<b>Causes</b>	<b>Solutions</b>
Color loss or no video signal output in HDMI display	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
	Fail or lose connection.	Make sure the connection is good.
No output image when switching.	No signal at the input/output end.	Check with oscilloscope or multimeter if there is any signal at the input/ output end.
	Fail or lose connection.	Make sure the connection is good.
	Input source is with HDCP while the HDCP compliance is switched off.	Send command /%x]:[1]. to change HDCP compliance status.
	The display doesn't support the input resolution.	Switch for another input source or enable the display to learn the EDID data of the input.
No output on the amplifiers connected to audio output ports.	The amplifiers are not able to decode HDMI audio.	Change for amplifiers that are capable to decode HDMI audio.
Cannot control the device via front panel buttons.	Front panel buttons are locked.	Send command /%Unlock; to unlock.
Cannot control the device via IR remote	The battery has run off.	Change for new battery.
	The IR remote is broken.	Send it to authorized dealer for repairing.
	Beyond the effective range of the IR signal or not pointing at the IR receiver.	Adjust the distance and angle and point right at the IR receiver.
Power Indicator remains off when powered on.	Fail or lose power connection	Check whether the cables are connected correctly.
EDID management does not work normally.	The HDMI cable is broken at the output ends.	Change for another HDMI cable which is in good working condition
There is a blank screen on the display when switching		Switch again.
	The display does not support the resolution of the video source.	Manage the EDID data manually to make the resolution of the video source automatically compliant with the output resolution.
Cannot control the device by control by control device (i.e. a PC) through RS232 port.	Wrong connection.	Check to ensure the connection between the control device and the unit.
	Wrong RS232 communication parameters.	Type in correct RS232 communicating parameters: see page 9.
	Broken RS232 port.	Send it to authorized dealer for checking.

## SAFETY AND NOTICE

This product has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, it should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit.
- Always unplug the power to the device before cleaning.

## LIMITED WARRANTY

With the exceptions noted in the next paragraph, Vanco warrants to the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in Vanco's opinion, prove defective within this warranty period, Vanco, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of Vanco. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into Vanco products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to Vanco. A surge protector, power conditioner unit, or an uninterruptible power supply must be installed in the electrical circuit to protect against power surges.

If repairs are needed during the warranty period the purchaser will be required to provide a sales receipt/sales invoice or other acceptable proof of purchase to the seller of this equipment. The seller will then contact Vanco regarding warranty repair or replacement.

# TECHNICAL SUPPORT

In case of problems, please contact Vanco Technical Support by dialing 1-800-626-6445. You can also email technical support issues to [techsupport@vanco1.com](mailto:techsupport@vanco1.com).

When calling, please have the Model Number, Serial Number (affixed to the bottom of the unit) and Invoice available for reference during the call.

Please read this Instruction Manual prior to calling or installing this unit, since it will familiarize you with the capabilities of this product and its proper installation.

All active electronic products are 100% inspected and tested to insure highest product quality and trouble-free installation and operation. The testing process utilizes the types of high-definition sources and displays typically installed for entertainment and home theater applications.

For additional information, such as helpful installation videos, etc. please visit [www.vanco1.com](http://www.vanco1.com)

# LIABILITY STATEMENT

Every effort has been made to ensure that this product is free of defects. The manufacturer of this product cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user and installer of the hardware to check that it is suitable for their requirements and that it is installed correctly. All rights are reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

Manufacturer reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

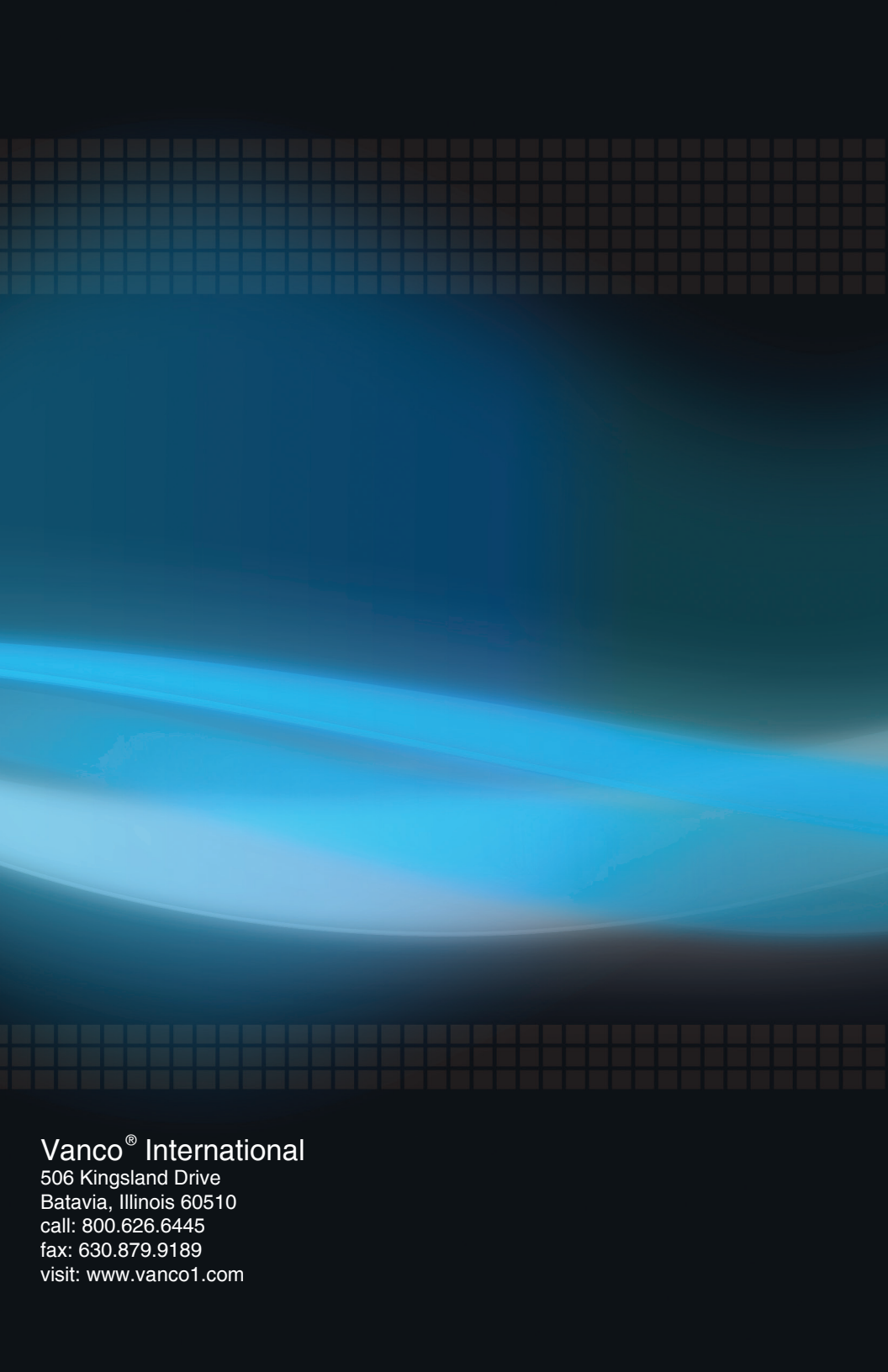
# FCC STATEMENT

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.





## Vanco<sup>®</sup> International

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